




Truth Efficiencies



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Today

- Efficiencies for lepton and jet cuts at the truth level for $t\bar{t}$ and Z' $m = 0.7, 1, 1.5$ TeV
 - Cut on $|\eta| < 2.5$ and p_T
 - Leptons: $p_T > 25$ GeV
 - Jets have for $A = \{25, 40\}$, $B = \{15, 25\}$ either:
 - 4 jets $> A$ GeV
 - 3 jets $> A$ GeV, 1 jet $> B$ GeV
 - First set are “our” standard cuts, second set are those used in the commissioning analysis
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Leptons

		tt	0.7 TeV	1 TeV	1.5 TeV
$p_T > 25 \text{ GeV}$	lepton	77%	81%	84%	88%
	neutrino	83%	85%	87%	91%
$ \eta < 2.5$	lepton	92%	88%	91%	93%
	neutrino	88%	88%	91%	93%
$p_T > 25 \text{ GeV} \ \& \ \eta < 2.5$	lepton	73%	73%	78%	84%
	neutrino	74%	76%	82%	86%

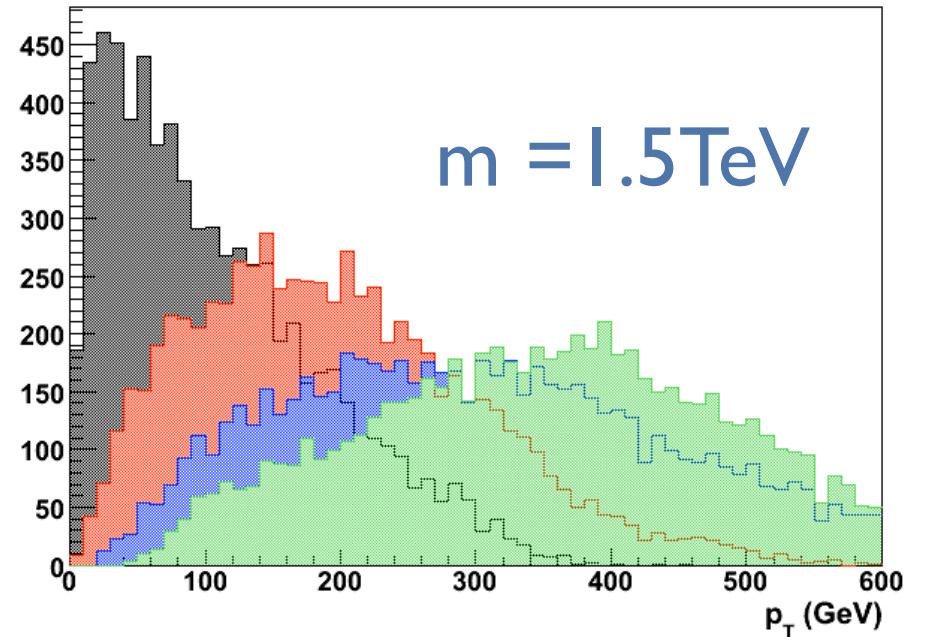
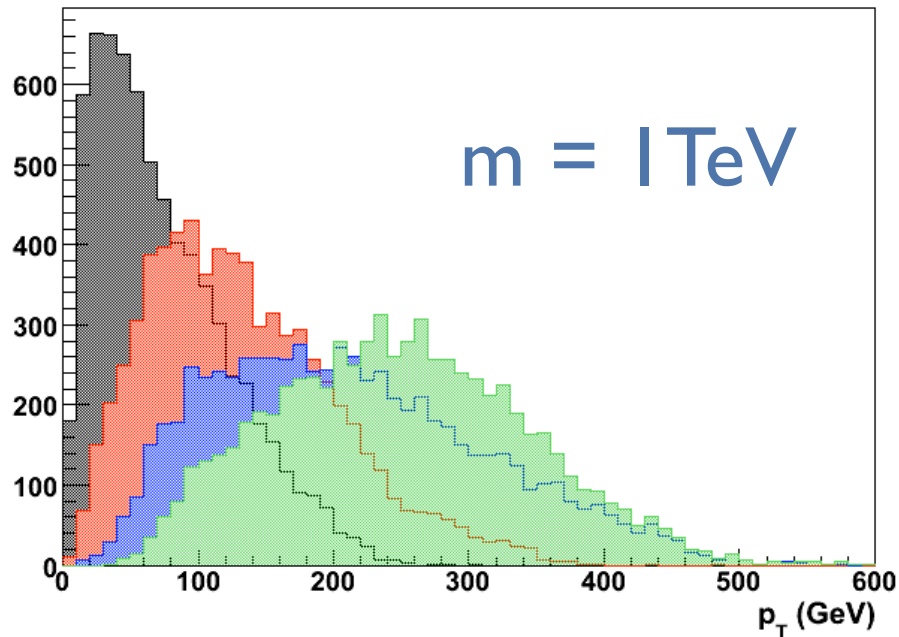
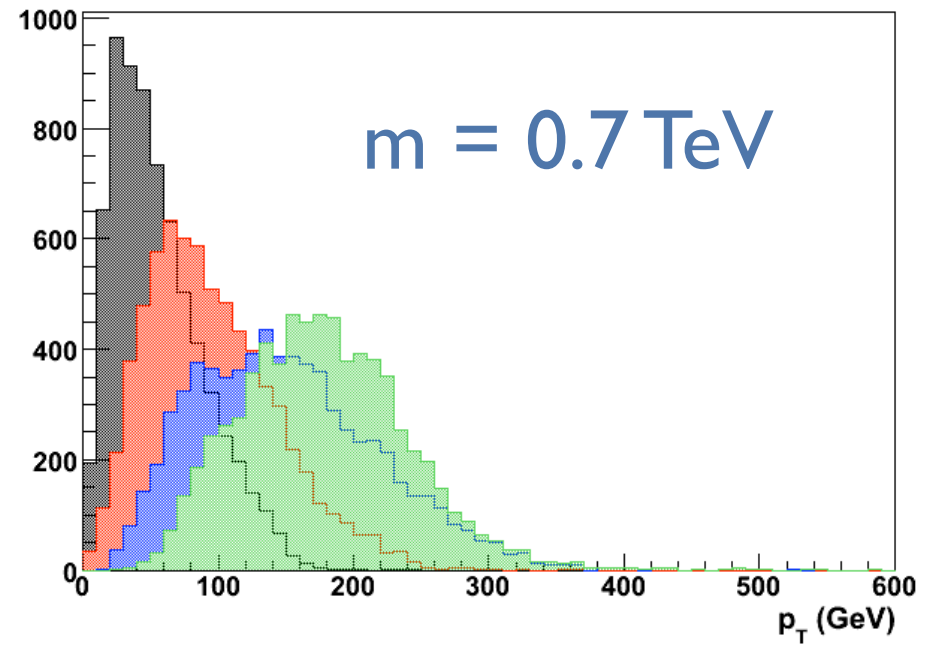
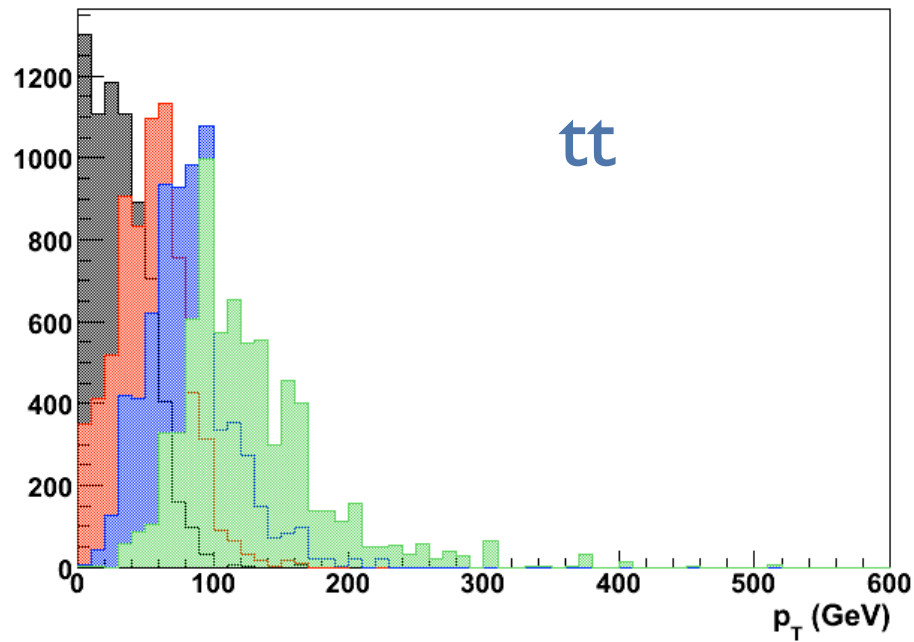
Neutrinos
have higher p_T
than leptons

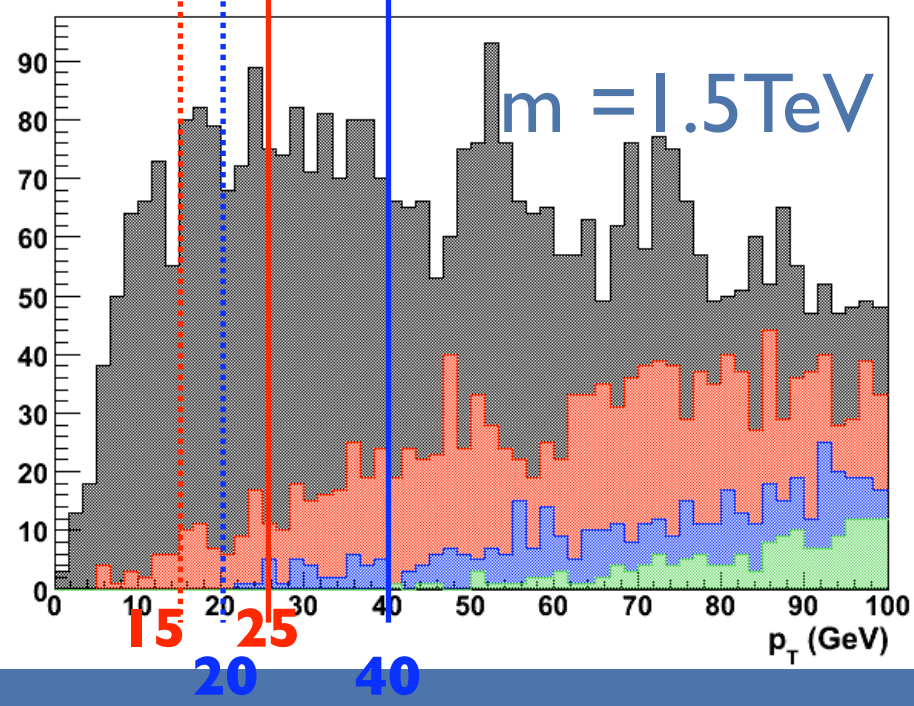
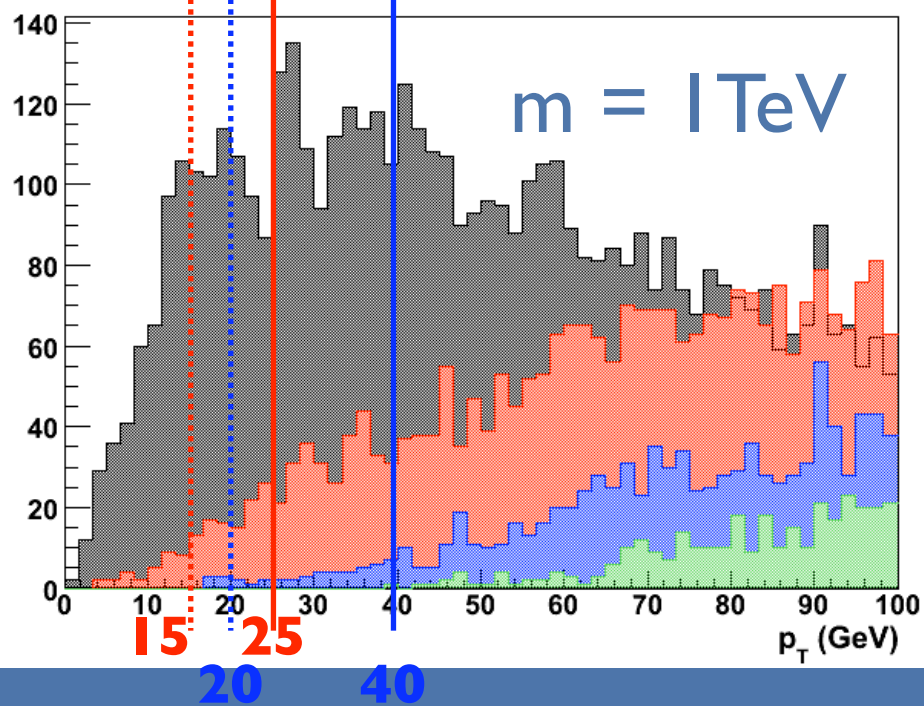
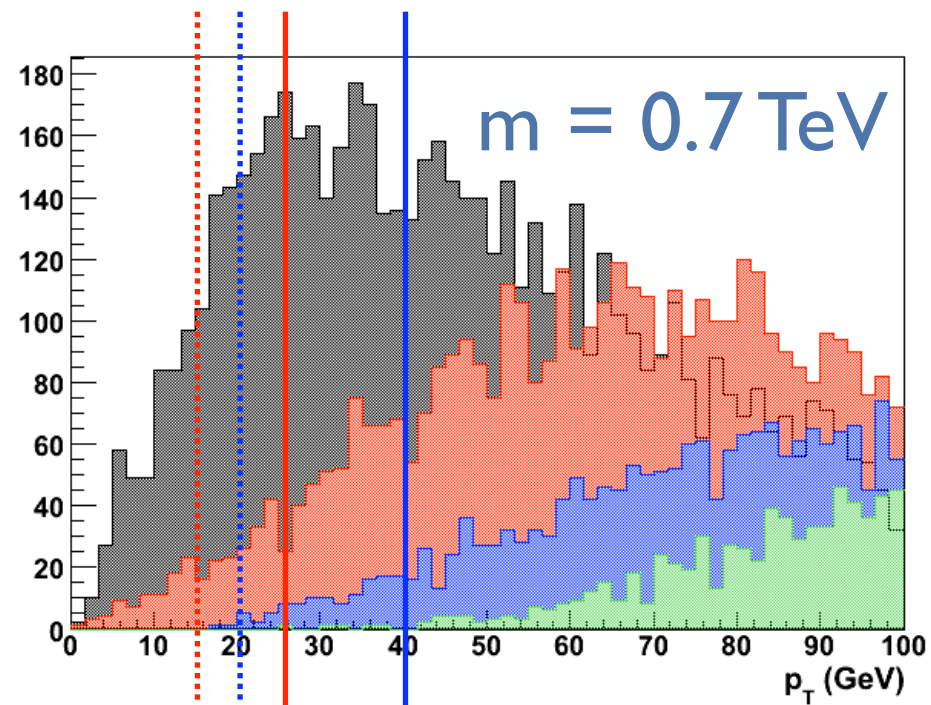
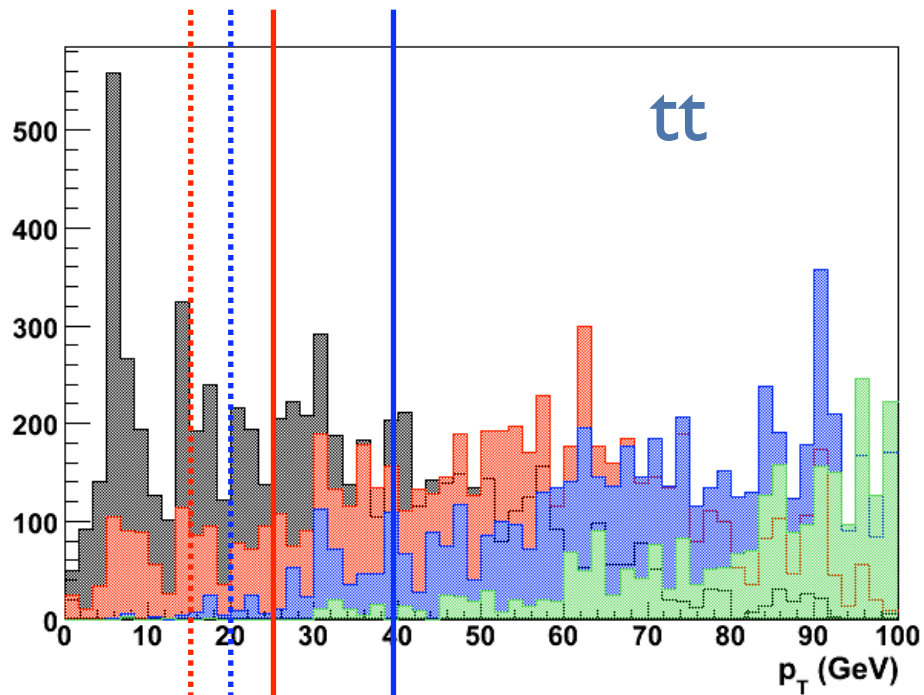
Partons

($|\eta| < 2.5$)

	tt	0.7 TeV	1 TeV	1.5 TeV
η	54%	76%	82%	88%
all > 40 GeV	33% (23%)	61% (50%)	70% (61%)	78% (72%)
all > 25 GeV	58% (37%)	81% (65%)	85% (72%)	88% (79%)
l-3 > 40 GeV, 4 > 20 GeV	56% (36%)	81% (64%)	85% (73%)	89% (80%)
l-3 > 25 GeV, 4 > 15 GeV	72% (45%)	91% (72%)	92% (78%)	94% (83%)

Parton p_T





Leptons + Jets

	Our cuts	Commissioning jets
tt	25%	20%
0.7 TeV	42%	38%
1 TeV	52%	49%
1.5 TeV	63%	60%

Commissioning analysis twiki:
<http://tinyurl.com/2h2z4r>



Conclusion



- All efficiencies increase with increasing mass
- Little correlation between different cuts
- We need a good choice of jet cuts
- Next: use ATLFAST to start looking at reconstructed data

